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SOME SCIENTIFIC COURSES FOR NURSES

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The courses discussed here were given to the pupil nurses of the Department for the Insane of the Pennsylvania Hospital, West Philadelphia, during the years 1915-1918.

Our original intention was to make a well equipped laboratory as useful to the nurses as to the patients. There is a definite need that the nurse have, as a part of her training, a thorough knowledge of ordinary laboratory technique. This is demanded in most hospitals in the form of a required laboratory period. Theoretically this is ideal, but practically, the pupil spends most of her time cleaning glassware and performing such simple tests as she can be "trusted with." Such laboratories as are equipped well enough to help the nurse, are too busy to train her in the short period allotted. Moreover, in such a procedure there is lacking the orderliness and efficiency of class instruction.

For one year we had the classes of nurses in the laboratory for one evening period, two hours, every week. For these periods we made no preparation, simply having them present for whatever happened to be at hand to be done. This procedure involved too much repetition of work, and many valuable hours were lost because the material at hand was either not interesting enough or was too complex to be explained satisfactorily. We are not convinced that this plan could not be made to work well; the informality implied is of the greatest value, its demands upon the laboratory force are nominal, and it presents to the pupil nurse the practical life of the laboratory.

We then sought to continue presenting to the nurse the inherently scientific point of view of the laboratory, now applying it to her other training problems. In the two following years we developed three courses. One of these was a series of fourteen two-hour demonstrations accompanying the twenty-seven lectures which the Juniors had in Anatomy and Physiology. The second, for Intermediates, was a series of twelve two-hour demonstrations accompanying about twenty lectures on *Materia Medica*. Sixteen two-hour periods of laboratory work ran parallel with a similar number of lectures on Chemistry.

The Anatomy demonstrations employed cats as material, chiefly. A required attendance at autopsies made the differences in structure less embarrassing. Physiology was, whenever possible, linked with

Anatomy—e. g., in killing the cat for a blood vascular demonstration arrangements were made to demonstrate the beating heart during the final stages of etherization. The circulation in the web of a frog's foot was also shown. Every emphasis was placed upon the cellular aspect of Anatomy. From the start the pupil nurses were made familiar with the microscope. A simple hay infusion gave a wealth of unicellular organisms and the store of pathological sections was also called on in giving the students a comprehensive picture of the cell. No system was demonstrated grossly until its various parts had been seen under the microscope. Without attempting to make anatomists of our students, we yet felt that a cellular Anatomy was just as essential to the nurse as to the doctor.

The demonstrations given in Physiology and Pharmacology attempted to develop the fundamental principles of these subjects. Again, frogs and cats were our material. The goal was a simple exposition of the modern notions of the phenomena of life. We first dealt with the environment in which the organism found itself—oxygen, water, definite osmotic and atmospheric pressures; and then with the criteria of life—motility, growth, metabolism, etc. Through the simple and historic experiments of v. Kries, Loeb and others, we indicated the physico-chemical trend of modern biological thought. Taking up the several criteria separately, we emphasized first their presence in the single-celled organism and then their specialization under certain organs of the whole human economy. Here was introduced the action of drugs in an attempt to demonstrate their fundamental action. For instance, contractility is one of the criteria of living matter. Contractility is evidenced markedly in the heart muscle. Digitalis has a definite action on contractility in the heart muscle. Very simple experiments, employing the frog and the cat, give an unforgettable picture of these facts. The study of digitalis was thus approached from an entirely different point of view than that assumed in the formal lectures on materia medica. This we consider of the greatest value in fixing in the pupil nurse's mind the action of this drug.

Throughout the work a very complete outline of the procedures to be followed for the evening was prepared, and a copy given to each nurse. While the pupils were allowed to take such notes as they wished, none were necessary, thus attempting to keep their undivided attention on the demonstration at hand. We encouraged them to go over their outlines later, in an attempt to recall the picture presented at the demonstration. Later courses along this line might be supplemented with a few "conferences" in each of which say three of the preceding demonstrations would be discussed. There must,

however, never enter the slightest trace of the spirit of examination. We felt that our success owed more to the spirit of helpfulness and coöperation than to any one other thing.

The course in Chemistry laid every emphasis on the fundamental principles of inorganic chemistry. The more "interesting" and "practical" subjects—e. g., why soap cleans or why sulphur dioxide kills—were completely subordinated to the phenomena of chemical union and the theories of atoms and ions. The laboratory work was devoted to acquainting the pupils with the important elements and their combinations. Even the slightest introduction to organic chemistry was entirely scientific in its character.

In a well equipped laboratory, the expense involved in those courses is very light. We felt the need of a kymograph but got along very satisfactorily with only a home-made mercury manometer. Cannulae, etc., can be easily made from various pieces of ordinary laboratory apparatus. Of course massive doses of the drugs are employed—so that the results are striking. The greatest difficulty, at first, is in obtaining animals for demonstration. Once the course was established, we found the pupil nurses more than willing to procure such experimental material as we needed. The chemicals required in the course in Chemistry were rather out of the line of the regular laboratory requirements. For \$20 we obtained such as we needed and could not get from the regular laboratory stock.

It will be seen that all of these courses contain little that is "practical." This was the intent. Probably much of the information will always remain simply an addition in the lives of these nurses, something interesting beyond each day's humdrum. But in most of the pupils there was stimulated an idea of coördinating fundamental principles with the actualities of the day. Our experience has led us to believe that there should be introduced into all schools a considerable amount of this work. It will succeed if properly conducted.

It is objected that much of what was taught was "none of the nurse's business." Traditionally but the handmaiden of the doctor, the making of beds and the technique of the hypodermic has always played a predominating part in her education. We quite definitely feel that with the changing economic conditions the profession of nursing will, if it does not also change, attract with increasing difficulty the best type of women. We tried these courses as an experiment in answering this need. If of no great value in themselves, they open fields of specialization which must appeal to the woman who, to-day, asks economic independence. Attempts along these lines have been made in the establishment of postgraduate courses. We feel that there is time and necessity for this work to begin in the training course itself.

Who should have charge of this part of the nurse's training? Very definitely it should not be in the hands of the practising physician. The temptation to fit the course to the exigencies of the actual practice of medicine would be too great. The same applies to registered nurses who have not had special training. These courses should be given by persons who have had a thorough biological and chemical training, and every attempt should be made to retain that point of view. The presence of such a person in the teaching personnel of each hospital would eventually probably mean that the equivalent of nearly a year's work would be given along the lines outlined above. We feel that this would be a great stride in the solution of the problem of assuring the nursing profession its foremost position among the professions that appeal to those women who seek economic and mental individuality.

Such work as we attempted of course presupposes the hearty coöperation of those in authority. As superintendent of nurses, Miss Brown showed that spirit of coöperation and vision of a brighter future that made our experiment possible and our labor, an easy and pleasant task.

NURSING DURING THE PRE-CHRISTIAN ERA¹

BY ELLA E. SHARP

The very word "nurse," i. e., "nourish," is almost sufficient proof in itself of the original connection of women with the care of the sick. It has always been woman's part to nourish the weak, beginning with her own babes, in the nourishing of whom no doubt her first sense of responsibility was founded. From that natural beginning has developed her sense of responsibility to the race, both of the present and the future, and more especially her sense of responsibility towards the sick, weak, and disabled. Men, as the gregarious instincts of the race grew and developed, learned gradually the meaning of comradeship, and with this knowledge sought and acquired the skill which would enable an injured comrade to keep up with his fellows,—the beginning of medical science and surgical skill—while to women, in proportion as the race became more and more settled in its abodes, fell the more patient task of watching, guarding, and nursing the injured man through periods of disablement and sickness, as well as

¹ Miss Sharp, a student nurse at the City Hospital, New York, who died during the epidemic of influenza, was an unusual woman, of culture and education. She had been a teacher of history and brought to her studies in History of Nursing, a fund of knowledge "greater than her teachers possessed." She had lived in South Africa at one time. She gave promise of becoming, in years to come, a leader in the nursing profession, so that her death seemed a greater tragedy.